**What is claimed is:**

1. A method for separating one or more components of interest from a sample comprising the steps of:
   a. filtering a sample containing particulates and soluble materials through silica filter media whose surface active groups have reacted with one or more silanes,
   b. simultaneously capturing particulates and binding a soluble component of interest to the silica filter media, and
   c. eluting the bound soluble component of interest from the silica filter media.

2. A method for separating one or more components of interest from a sample comprising the steps of:
   a. filtering a sample containing particulates and soluble materials through silica filter media whose surface active groups have been reacted with one or more silanes,
   b. simultaneously capturing particulates and binding unwanted soluble materials to the silica filter media,
   c. collecting the flow-through stream, and
   d. recovering the soluble component of interest from the flow-through stream.

3. The method according to Claim 2, further comprising a step (e) of purifying the soluble component of interest from the flow-through stream.

4. The method according to Claim 1 or 2, further comprising a step (e) of recovering an insoluble component of interest from the particulates.

5. The method according to Claim 1 or 2, wherein said particulates are captured by physical entrapment and/or binding to the silica filter media.

6. The method according to Claim 1 or 2, wherein said particulates are microorganisms

7. The method according to Claim 6, wherein said microorganisms are gram-positive bacteria, gram-negative bacteria, fungi, yeast, mold, or viruses.

8. The method according to Claim 1 or 2, wherein said particulates are precipitates, inclusion bodies or crystals.

9. The method according to Claim 1 or 2, wherein said sample is pre-mixed with said silica filter media prior to the filtering step.

10. The method according to Claim 1 or 2, wherein said soluble component is bound to the silica filter media through an electrostatic, a hydrophobic, or a hydrophilic interaction.

11. The method according to Claim 1 or 2, wherein said silica filter media have a similar or improved flow rate compared with untreated silica filter media.

12. The method according to Claim 1 or 2, wherein said surface active groups have reacted with one or more silanes by a dry or wet process.

13. The method according to Claim 1 or 2, wherein said silica filter media are macroporous silica.

14. The method according to Claim 13, wherein said silica filter media are rice hull ash, oat hull ash, or diatomaceous earth.

15. The method according to Claim 14, wherein said rice hull ash, oat hull ash, or diatomaceous earth is purified.

16. The method according to Claim 1 or 2, wherein said silane comprises a hydrolyzable moiety selected from the group consisting of alkoxy, halogen, hydroxy, aryloxy, amino, carboxy, cyano, aminoacyl, acylamino, alkyl ester, aryl ester, which reacts with the active group of the silica filter media.

17. The method according to Claim 16, wherein said hydrolyzable moiety is an alkoxy group.

18. The method according to Claim 17, wherein said silane is a mono-, di-, or trialkoxysilane.

19. The method according to Claim 16, wherein said silane has an additional moiety selected from the group consisting of quaternary ammonium, aryl, epoxy, amino, urea, methacrylate, imidazole, carbonyl, isothiorium, sulfonate and phosphonate.

20. The method according to Claim 19, wherein said silane having a quaternary ammonium moiety is 3-(trimethoxysilyl)propyloctadecyldimethylammoniumchloride, N-trimethoxysilylpropyl-N,N,N-trimethylammoniumchloride, or 3-(N-styrylmethyl-2-aminoethylamino)-propyltrimethoxysilane hydrochloride.

21. The method according to Claim 19, wherein said silane having an aryl moiety is 3-(trimethoxysilyl)-2-(p,m-chloromethyl)-phenylethane, or phenyldimethylethoxysilane.

22. The method according to Claim 19, wherein said silane having an epoxy moiety is 3-glycidoxypropyltrimethoxysilane.

23. The method according to Claim 19, wherein said silane having an amino moiety is 3-aminopropyltrimethoxysilane, N-(2-aminoethyl)-3-aminopropyltrimethoxysilane, trimethoxysilylpropyldiethylenetriamine, or bis(2-hydroxyethyl)-3-aminopropyltriethoxysilane.

24. The method according to Claim 19, wherein said silane having an urea moiety is N-(triethoxysilylpropyl)urea.

25. The method according to Claim 19, wherein said silane having a methacrylate moiety is 3-(trimethoxysilyl)propyl methacrylate.

26. The method according to Claim 19, wherein said silane having an imidazole moiety is N-[3-(triethoxysilyl)propyl]imidazole.

27. The method according to Claim 1 or 2, wherein said silane-reacted silica filter media have a general formula selected from the group consisting of particle-O-$Si(R^1)_x(R^2)_{3-x}R^3$,

particle-O-$Si(R^1)_x(R^2)_{3-x}R^4NR^5$-$CH_2$-$CR^6$($OR^5$)-$R^7N^+(R^8)_3$ $Cl^-$ , and

particle-O-$Si(R^1)_x(R^2)_{3-x}R^4OR^9CR^6$(OH)–$CH_2SO_3^-Na^+$ ,

wherein $R^1$ is alkoxy, halogen, hydroxy, aryloxy, amino, carboxy, cyano, aminoacyl, or acylamino, alkyl ester, or aryl ester;

$R^2$ and $R^8$ are independently substituted or unsubstituted alkyl, alkenyl, alkaryl, alkcycloalkyl, aryl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic, cycloalkaryl, cycloakenylaryl, alkcycloalkaryl, alkcycloalkenyaryl, or arylalkaryl;

$R^3$ is hydrogen, alkyl, alkenyl, alkaryl, alkcycloalkyl, aryl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic, cycloalkaryl, cycloakenylaryl, alkcycloalkaryl, alkcycloalkenyaryl, arylakaryl, alkoxy, halogen, hydroxy, aryloxy, amino, alkyl ester, aryl ester, carboxy, sulphonate, cyano, aminoacyl, acylamino, epoxy, phosphonate, isothiouronium, thiouronium, alkylamino, quaternary ammonium, trialkylammonium, alkyl epoxy, alkyl urea, alkyl imidazole, or alkylisothiouronium; wherein the hydrogen of said alkyl, alkenyl, aryl, cycloalky, cycloalkenyl, heteroaryl, and heterocyclic is optionally substituted by halogen, hydroxy, amino, carboxy, or cyano;

$R^5$, $R^6$, $R^8$ are independently hydrogen, substituted or unsubstituted alkyl, alkenyl, alkaryl, alkcycloalkyl, aryl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic, cycloalkaryl, cycloakenylaryl, alkcycloalkaryl, alkcycloalkenyaryl, ether, ester or arylalkaryl;

$R^4$, $R^7$, $R^9$ are substituted or unsubstituted alkyl, alkenyl, alkaryl, alkcycloalkyl, aryl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic, cycloalkaryl, cycloakenylaryl,

alkcycloalkaryl, alkcycloalkenyaryl, or arylalkaryl radicals capable of forming two covalent attachments.

28. The method according to Claim 1 or 2, wherein said soluble component is a polypeptide, lipid, carbohydrate, lipoprotein, polysaccharide, sugar, fatty acid, or polynucleotide.

29. A method for separating soluble components of interest from a sample comprising the steps of:

a. filtering a sample containing particulates and soluble materials through silica filter media whose surface active groups have been reacted with one or more silanes,

b. simultaneously capturing particulates and binding a first soluble component of interest to the silica filter media, collecting the flow-through stream,

c. collecting the flow-through stream,

d. recovering a second soluble component of interest from the flow-through stream,

e. eluting the bound first soluble component of interest from the silica filter media, and

f. recovering the first soluble component of interest.

30. A silane-treated silica filter media having a general formula selected from the group consisting of particle-O-Si$(R^1)_x(R^2)_{3-x}R^3$,

particle-O-Si$(R^1)_x(R^2)_{3-x}R^4NR^5$-$CH_2$-$CR^6$($OR^5$)-$R^7N^+(R^8)_3$ $Cl^-$ , and

particle-O-Si$(R^1)_x(R^2)_{3-x}R^4OR^9CR^6$(OH)–$CH_2SO_3^-Na^+$ ,

wherein $R^1$ is alkoxy, halogen, hydroxy, aryloxy, amino, carboxy, cyano, aminoacyl, or acylamino, alkyl ester, or aryl ester;

$R^2$ and $R^8$ are independently substituted or unsubstituted alkyl, alkenyl, alkaryl, alkcycloalkyl, aryl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic, cycloalkaryl, cycloakenylaryl, alkcycloalkaryl, alkcycloalkenyaryl, or arylalkaryl;

$R^3$ is hydrogen, alkyl, alkenyl, alkaryl, alkcycloalkyl, aryl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic, cycloalkaryl, cycloakenylaryl, alkcycloalkaryl, alkcycloalkenyaryl, arylakaryl, alkoxy, halogen, hydroxy, aryloxy, amino, alkyl ester, aryl ester, carboxy, sulphonate, cyano, aminoacyl, acylamino, epoxy, phosphonate, isothiouronium, thiouronium, alkylamino, quaternary ammonium, trialkylammonium, alkyl epoxy, alkyl urea, alkyl imidazole, or alkylisothiouronium; wherein the hydrogen of said alkyl, alkenyl, aryl, cycloalky, cycloalkenyl, heteroaryl, and heterocyclic is optionally substituted by halogen, hydroxy, amino, carboxy, or cyano;

$R^5$, $R^6$, $R^8$ are independently hydrogen, substituted or unsubstituted alkyl, alkenyl, alkaryl, alkcycloalkyl, aryl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic, cycloalkaryl, cycloakenylaryl, alkcycloalkaryl, alkcycloalkenyaryl, ether, ester or arylalkaryl;

$R^4$, $R^7$, $R^9$ are substituted or unsubstituted alkyl, alkenyl, alkaryl, alkcycloalkyl, aryl, cycloalkyl, cycloalkenyl, heteroaryl, heterocyclic, cycloalkaryl, cycloakenylaryl, alkcycloalkaryl, alkcycloalkenyaryl, or arylalkaryl radicals capable of forming two covalent attachments;

wherein said silica filter media is rice hull ash or oat hull ash.